1   Patent claims

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3   1.   A method for managing and monitoring the operation of a
4   plurality of distributed hardware and/or software systems that
5   are integrated into at least one communications network, a
6   central program means that is stored in a data processing
7   device processing system-related data which are present in the
8   data processing device or are received by the latter via a
9   communications network, autonomously deriving operation-
10   related decisions from said data and, on the basis of said
11   decisions, generating decision-specific control data for
12   influencing the operation of one or more hardware and/or
13   software systems and transmitting said control data, via the
14   communications network, to data processing devices which are
15   assigned to the respective hardware and/or software systems.

16

17   2.   The method as claimed in claim 1, characterized in that
18   the central program means accesses rule data, which comprise,
19   in particular, rules regarding priorities and/or sequences
20   and/or logical and/or temporal relationships, and/or
21   performance data, which relate, in particular, to the current
22   operational load and/or the temporally restricted and/or
23   dynamic and/or periodically needed capacity requirement,
24   and/or grouping data and/or classification data and/or
25   availability data, said data being stored in the data
26   processing device.

27

28   3.   The method as claimed in one of the preceding claims,
29   characterized in that the system-related data are operating
30   plans, which regulate, in particular, run times and ·
31   availability of individual hardware and/or software systems,
32   and/or information regarding the operating state of individual
33   systems, said information relating, in particular, to the
34   current and/or future and/or periodic workload, and/or an
35   operator's wishes which have been input at the central and/or
36   individual system level using an input device.

1   4.   The method as claimed in claim 3, characterized in that
2   the central data processing device receives the information
3   regarding the operating state of individual systems in an
4   active and/or passive manner.
5
6   5.   The method as claimed in either of claims 3 and 4,
7   characterized in that the information relates to hardware in
8   the form of clients and/or servers and/or networks and/or
9   storage systems and/or software in the form of applications
10   and/or distributed applications having services that are
11   dependent on one another and/or distributed application
12   systems having virtualized services that are dependent on one
13   another and/or independent of one another and/or databases
14   and/or front ends.
15
16   6.   The method as claimed in one of the preceding claims,
17   characterized in that the control data control the starting
18   and/or stopping and/or addition of services and/or the
19   movement of services and/or applications and/or the
20   maintenance of a distributed hardware and/or software system.
21
22   7.   The method as claimed in one of the preceding claims,
23   characterized in that the operation-related decisions comprise
24   the determination of administrative tasks and/or chains of
25   tasks.
26
27   8:   The method as claimed in claim 7, characterized in that
28   the central program means autonomously separates
29   administrative tasks and/or chains of tasks into subtasks
30   taking into account logical and/or temporal relationships
31   and/or dynamic influences and/or availability data and/or
32   priorities and/or grouping data and/or classification data
33   and/or application data which are present in the data
34   processing device, in particular for the purpose of moving
35   and/or replacing application entities.
36

1   9.   The method as claimed in claim 7 or 8, characterized in
2   that the central program means checks the temporal progression
3   of the administrative tasks and/or chains of tasks, which are
4   transmitted to the individual hardware and/or software systems
5   in the form of control data, continuously and/or at particular
6   intervals of time.
7
8   10. The method as claimed in one of the preceding claims,
9   characterized in that at least some of the distributed
10 hardware and/or software systems are assigned their own
11 autonomous program means which are stored in data processing
12 devices and are in the form of autonomous agents which are
13 subordinate to the central program means.
14
15 11. The method as claimed in claim 10, characterized in that
16 the autonomous agent of an individual hardware and/or software
17 system accesses rule data which are prescribed at the system
18 level in the data processing devices and comprise, in
19 particular, rules for the individual system and/or the
20 interaction with the central autonomous program means.
21
22 12. The method as claimed in either of claims 10 and 11,
23 characterized in that the central program means and the
24 autonomous agents of the individual hardware and/or software
25 systems interchange control and/or rule data via the
26 communications networks.
27
28 13. The method as claimed in one of claims 10 to 12,
29 characterized in that the central program means grants
30 decision-making powers to the autonomous agents of the
31 individual systems, and/or withdraws said decision-making
32 powers, in a permanent or temporally restricted and/or dynamic
33 manner using the communications networks.
34
35 14. The method as claimed in one of claims 10 to 13,
36 characterized in that the autonomous agents of the individual
37 hardware and/or software systems respectively transmit general

1 and/or system-specific control data to the data processing
2 device of the central program means via a communications
3 network and/or publish said data in generally accessible file
4 systems and/or collaborate in the separation of administrative
5 tasks and/or chains of tasks into subtasks.
6
7 15. The method as claimed in one of the preceding claims,
8 characterized in that the central program means is operated in
9 different operating modes, in particular in a fully autonomous
10 or partially autonomous manner and/or with different reaction
11 speeds.
12
13 16. The method as claimed in claim 15, characterized in that
14 the operation of the central program means in the partially
15 autonomous mode is changed and/or interrupted by manual inputs
16 on an input device by an authorized administrator.
17
18 17. The method as claimed in either of claims 15 and 16,
19 characterized in that the operation of the central program
20 means in the partially autonomous mode is changed and/or
21 interrupted by the autonomous agents of the individual
22 systems.
23
24 18. The method as claimed in one of the preceding claims,
25 characterized in that the central program means comprises a
26 notification component which uses an output device to output
27 information regarding substeps of the work of the central
28 program means and/or the processing state thereof.
29
30 19. The method as claimed in one of the preceding claims,
31 characterized in that the distributed hardware and/or software
32 systems comprise at least one application system.
33
34 20. The method as claimed in claim 19, characterized in that
35 the at least one application system comprises a plurality of
36 entities which each control at least one service, in
37 particular interactive mode and/or batch mode and/or

1 accounting and/or printing and/or messaging and/or network
2 services.
3
4 21.   The method as claimed in either of claims 19 and 20,
5 characterized in that a plurality of application systems
6 cooperate in a system family.
7
8 22.   The method as claimed in one of claims 19 to 21,
9 characterized in that at least one application system is
10 operated in a virtual environment without fixed hardware
11 assignment.
12
13 23.   The method as claimed in one of the preceding claims,
14 characterized in that the distributed hardware and/or software
15 systems comprise client/server systems and/or operating
16 systems.
17
18 24.   A system for managing and monitoring the operation of a
19 plurality of distributed hardware and/or software systems that
20 are integrated into at least one communications network, said
21 system comprising a data processing device and a central
22 autonomous program means that is stored in the latter and/or
23 autonomous agents (which are stored in data processing
24 devices) for individual hardware and/or software systems
25 and/or input and/or output devices at the central and/or
26 individual system level and being designed to carry out the
27 method as claimed in one of the preceding claims.
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